(No Model.)

G. WESTINGHOUSE, Jr.

BRAKE SHOE.

No. 399,103. Patented Mar. 5, 1889.

FIG. 1.

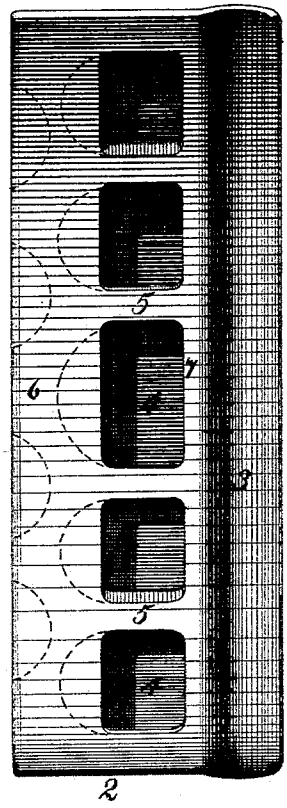


FIG. 3.

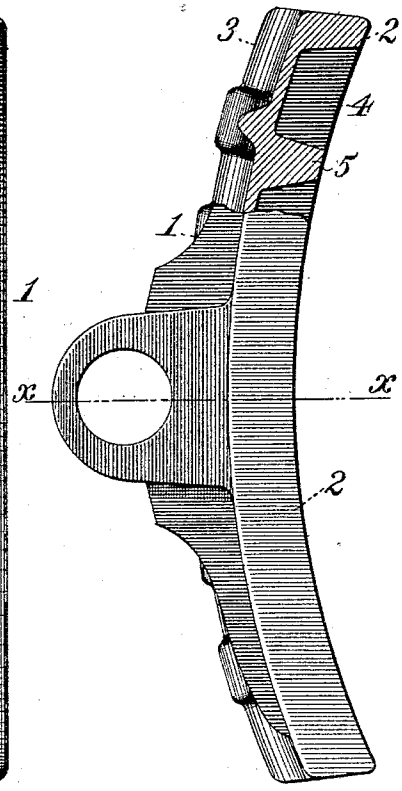


FIG. 2.

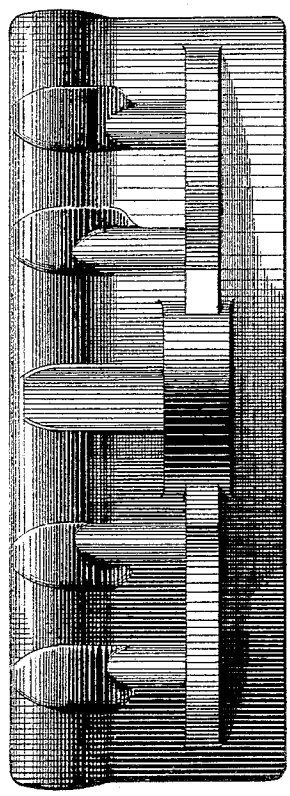


FIG. 4.

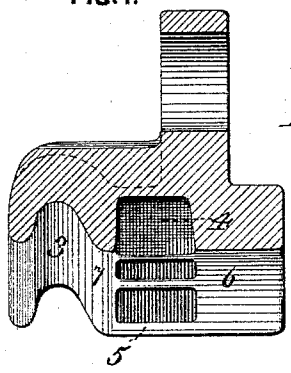


FIG. 5.

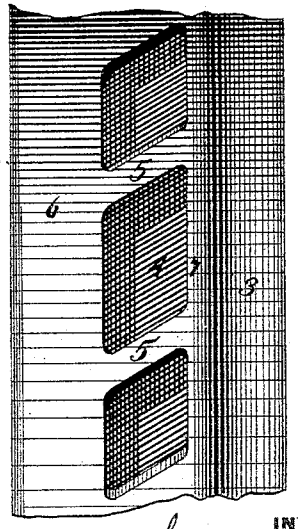
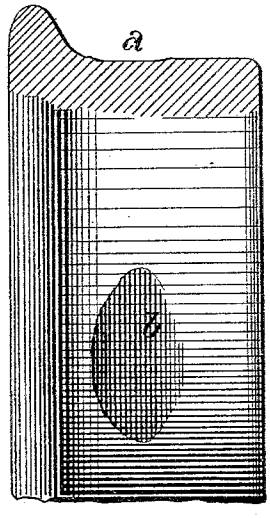


FIG. 6.



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GEORGE WESTINGHOUSE, JR., OF PITTSBURG, PENNSYLVANIA.

BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 399,103, dated March 5, 1889.

Application filed November 15, 1888. Serial No. 290,914. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WESTINGHOUSE, Jr., a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Brake-Shoes, of which improvement the following is a specification.

The invention described herein relates to improvements in brake-shoes for railway-wheels. Such shoes have heretofore been constructed so as to have a uniform bearing across the tread of the wheel, as in the Lappin shoes, or else only upon those parts which are most free from wear—as, for example, the Ross shoe, which is constructed to bear upon the outer portions of the tread and those portions closely adjacent to the flange, the portion of the face of the shoes in line with the part of the wheel most subjected to wear being grooved so as not to bear upon the tread. The latter form of shoe, while effective to a certain extent for remedial purposes, will not prevent or remove any flattening or other malformation due to wear of the portion of the tread normally bearing upon the rail.

The object of my invention is to prevent or remove any flattening of what might be termed the "bearing portion" of the tread, and at the same time to prevent the formation of a groove in the bearing portion of the wheel by effecting a reduction of the parts of the wheel on both sides of such bearing portion equal, or approximately so, to the reduction due to contact of the bearing portion upon the rail.

In general terms, the invention consists in the construction of brake-shoes substantially as hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figures 1 and 2 are views in elevation of the front and rear faces, respectively, of my improved shoe. Fig. 3 is a view of the shoe in side elevation, a portion being broken away. Fig. 4 is a section on the line x x, Fig. 3. Fig. 5 is a view in elevation of the face of a shoe, showing a modified arrangement of the recesses; and Fig. 6 is an edge view of a portion of a car-wheel.

As is well known, the normal bearing-point of a car-wheel tread upon a rail is a short distance from the flange, as at a, Fig. 6, and hence such portion of the wheel is worn away more rapidly than the other portions, thereby forming a groove. If the ordinary form of brake-shoe—*i. e.*, one having an equal bearing across the entire tread of the wheel—is employed, the portions of the face of the shoe on each side of that portion in line with the bearing portion a of the wheel will be worn away more rapidly, and the portion a of the wheel will soon be grooved, and consequently have no bearing upon the shoe, thereby forming a rib on the shoe, which, projecting into the groove in the wheel and bearing on the surface thereof, will accelerate the grooving action.

In the Ross brake-shoe the above-described grooving of the wheel is prevented by so recessing the face of the shoe that it will not have any bearing on the portion a of the wheel when applied thereto; but as such a shoe has no bearing upon the portion a of the tread it cannot prevent or correct any flattening, recessing, or other malformation of the portion a of the tread.

In my improved shoe 1, which is preferably made of a width somewhat greater than the thickness of the rim of the wheel to which it is designed to be applied, and has the bearing portion or face 2 made to conform transversely and longitudinally to the transverse and peripheral contour of the tread of the wheel, and along the inner edge of such bearing-face is provided with a groove, 3, constructed to fit over and bear upon the inner face and edge of the flange of the wheel, I provide for a prevention or correction of this flattening or other malformation by forming a series of recesses, 4, in that portion of the face of the shoe in line with the bearing portion a of the tread, thereby forming a series of short bearing-faces, 5, as shown in Figs. 1, 3, and 4. These bearing-faces 5 will operate upon the portion a of the tread, and should a flattening or recessing, as at b, Fig. 6, occur at any point of the portion a the faces will, by the rubbing action of their surfaces, and, perhaps, a slight cutting action of the edges thereof, reduce the portion a at other points of its perimeter to a diameter equal to the diameter passing through the flattened or recessed part b, such

part being within the range of action of the faces 5, and so keeping the wheel to standard shape.

It will be readily understood that, as the superficial area of the faces 5 is so small in comparison with the superficial area of the other portions of the face of the shoe and of the portion *a* of the tread, said faces will not assist to any appreciable extent in the formation of a groove in the tread, as hereinbefore stated in regard to the ordinary form of shoe.

The unrecessed portions 6 and 7 of the face of the shoe will operate to wear away the portions of the tread on each side of the portion *a*, thereby preventing the formation of a groove in said portion.

In so far as relates to the number, shape, and size or area of the recesses which I thus introduce into the car-wheel, and also in so far as relates to the relative proportion between the area of the recesses and the area of the intervening ribs, I do not limit myself in the present invention, for it will be readily seen that these features will be liable to more or less variation, owing to different qualities of metal employed both in wheels and in shoes, and perhaps to a limited extent to the amount or number of applications of the brake in any thousand miles of operation; and bearing in mind these and other contingencies met with in the ordinary operation of railway-trains, the skilled constructer will readily be enabled to apportion recesses and ribs both as to relative areas and locations and as regards their shape and location with reference to the wheel itself so as to get good results. Thus, for example, as shown in Fig. 1, the recesses 4 may be enlarged and changed in shape, or the location of such recesses may be changed to adapt the shoe to varying conditions of wear; and, further, the recesses may be arranged diagonally of the shoe, as represented in Fig. 5.

The above-mentioned changes and others which will suggest themselves to the constructer may be made without departing from the spirit of my invention.

I claim herein as my invention—

1. A brake-shoe having those parts of its face which operate on the portions of the wheel-tread normally in contact with the rail recessed at one or more points and the other portions thereof solid with reference to securing by different areas of wearing-surfaces in different parts of the brake-shoe a uniform or practically uniform wear of the wheel against which it operates, substantially as set forth.

2. A brake-shoe having in combination the continuous bearing portions 6 and 7 and the sectional bearing-faces 5, arranged to operate on that portion of a car-wheel normally bearing upon the rail, substantially as set forth.

In testimony whereof I have hereunto set my hand.

GEO. WESTINGHOUSE, JR.

Witnesses:

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